

# Claims (No multiple dependency.)

## What is claimed is:

1. A proximity sensor mountable adjacent to an aperture of a metallic motor vehicle for determining the presence of an object in the path of or proximate to a closure panel that moves between a fully open position and a closed position, the sensor comprising:
  - first and second electrodes encased in a non-conductive casing mountable on the vehicle, the two electrodes defining a capacitance  $CE_{1/2}$  therebetween;
  - a reference capacitor ( $C_1$ );
  - a first switch for selectively connecting the first electrode to the reference capacitor or to chassis ground;
  - a second switch for selectively connecting the second electrode to a first voltage reference source ( $V_{ref}$ ) or to chassis ground;
  - a controller for controlling the first and second switches in order to periodically charge the capacitance  $CE_{1/2}$  and transfer the charge stored thereon to the reference capacitor.
2. A proximity sensor according to claim 1, wherein the controller transfers charge from the capacitance  $CE_{1/2}$  to the reference capacitor for a fixed number of periods for each charge and discharge cycle of the reference capacitor.
3. A proximity sensor according to claim 2, wherein the controller measures the voltage level of the reference capacitor.
4. A proximity sensor according to claim 1, wherein the controller transfers charge from the capacitance  $CE_{1/2}$  to the reference capacitor for a variable number of periods for each charge and discharge cycle of the reference capacitor.

Correct set of claims. (should be used.)